

***What Every Member of the
Trade Community Should Know About:***

Fibers & Yarns

***Construction and Classification
under the Harmonized System***



An Advanced Level
Informed Compliance Publication of the
U. S. Customs Service

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PREFACE

On December 8, 1993, Title VI of the North American Free Trade Agreement Implementation Act (Pub. L. 103-182, 107 Stat. 2057), which is also known as the Customs Modernization Act or "Mod Act," became effective. These provisions amended many sections of the Tariff Act of 1930 and related laws. Two new concepts which emerge from the Mod Act are "*informed compliance*" and "*shared responsibility*." These concepts are premised on the idea that in order to maximize voluntary compliance with Customs laws and regulations, the trade community needs to be clearly and completely informed of its legal obligations. Accordingly, the Mod Act imposes a greater obligation on Customs to provide the public with improved information concerning the trade community's responsibilities and rights under the Customs and related laws. In addition, both the trade and Customs share responsibility in carrying out import requirements. For example, under section 484 of the Tariff Act, as amended, (19 U.S.C. §1484) the importer of record is responsible for using reasonable care to enter, classify and value imported merchandise, and provide any other information necessary to enable Customs to properly assess duties, collect accurate statistics and determine whether any other applicable legal requirement is met. The Customs Service is then responsible for fixing the final classification and value of the merchandise. The failure of an importer of record to exercise reasonable care may lead to delay in the release of merchandise or the imposition of penalties.

My office has been given a major role in meeting Customs informed compliance responsibilities. In order to provide information to the public, Customs intends to issue a series of informed compliance publications, and possibly cd-roms and videos, on topics such as value, classification, entry procedures, determination of country of origin, marking requirements, intellectual property rights, recordkeeping, drawback, penalties and liquidated damages.

The National Commodities Specialist Division of the Office of Regulations and Rulings has prepared this publication on *Fibers & Yarns: Construction And Classification Under the Harmonized Tariff System*, as one in a series. It is hoped that this material, together with seminars and increased access to Customs rulings, will help the trade community in improving voluntary compliance with the Customs laws.

The information provided in this publication is for general information purposes only. Recognizing that many complicated factors may be involved in customs valuation issues, an importer may wish to obtain a ruling under Customs Regulations, 19 C.F.R. Part 177, or obtain advice from an expert (such as a licensed Customs Broker, attorney or consultant) who specializes in Customs classification. Reliance solely on the general information in this pamphlet may not be considered reasonable care.

Comments and suggestions are welcomed, and should be addressed to me at the Office of Regulations and Rulings, U.S. Customs Service, 1301 Constitution Avenue, NW (Franklin Ct. Bldg), Washington, DC 20229.

Stuart P. Seidel
Assistant Commissioner
Office of Regulations and Rulings

**FIBERS & YARNS: CONSTRUCTION
AND CLASSIFICATION
UNDER THE HARMONIZED TARIFF SYSTEM**

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1. FIBER AND YARN CONSTRUCTION, NOMENCLATURE & TERMINOLOGY

BASIC DEFINITIONS

The HTS provides a wealth of definitions of a wide variety of textile items, but it contains no general definitions of "fiber", or "yarn," or, for that matter, "textiles." The textile trade defines a yarn generally as a strand of textile fibers, filaments or material suitable for knitting, weaving or otherwise forming a textile fabric. However, the HTS contains no such definition and implies in several places that the use of yarn is not necessarily limited to making fabric. This may remain an open question until it is resolved by an administrative or court ruling.

Except in a few cases where the tariff defines the term for a specific limited purpose, there is no general definition for the term textile. Where there is no definition, it would seem reasonable to consider any material that would be classified within Section XI as a "textile."

Yarns are generally made of fibers or filaments, which can come from various sources. The key distinction between filament and staple fiber (commonly known as spun) yarns is in the type of material making up the yarn:

Filaments consist of very long, thin cylinders of extruded material, either in single strands ("monofilament") or in grouped multiple strands ("multifilament"). For purposes of Section XI, a filament is less than 1 millimeter in maximum cross section (i.e., diameter, in most cases). A filament can be compared to a length of wire or fishing line. Multifilament yarns may be, but need not necessarily be, twisted.

Staple fiber yarns generally consist of much shorter lengths of material 25 to 180 mm in length. Generally, to form yarn from such short fibers, the fibers must be first aligned in a parallel fashion (carded, or carded and combed), then wound together ("spun") either clockwise or counter-clockwise so that the fibers adhere to each other. A yarn made in this way is also called a spun yarn. Spinning is a twisting process wherein the fibers, which are first aligned in a parallel fashion, are twisted together until they cling to each other well enough to remain in the form of a yarn. This type of twisting is to be distinguished from the process of taking two or more yarns and twisting them together to form a plied yarn (see discussion of "Twist" below).

Silk is a naturally-occurring filament; the silkworm produces a single filament of silk that can be thousands of feet in length. Cotton and wool are examples of naturally-occurring staple fibers. The fibers removed from the cotton plant are an inch or two in length, while the fibers cut from a sheep might be several inches in length.

Yarns may also be made of flat strips of materials such as polypropylene that are folded and twisted. If their "apparent width," i.e., their width in the folded or twisted condition, is 5 millimeters or less, they are classified in the appropriate textile provisions, mentioned later in this booklet.

The term "yarn," as it is used in this tariff, includes twine, cordage, rope and cable as well. See later discussion on that subject.

YARN CONFIGURATIONS: SINGLE VERSUS PLIED

Once a group of single filaments or a group of staple fibers is twisted or spun into a yarn, it can be referred to as a single yarn.

Most basic yarns are either single or plied (the HTS calls plied yarns "multiple" or "folded"). A single filament yarn could be a single multifilament yarn, which is one collection of parallel filaments grouped together, or twisted together in the same direction, or a single filament (a monofilament) intended for use in the production of a fabric. A single staple fiber yarn would be a yarn that has been made by spinning (winding) a collection of staple fibers all in the same direction.

Two or more single yarns can be twisted with each other to form a "plied" or "multiple" or "folded" yarn. Generally, the direction of the twist in such a yarn would be the opposite of the direction of the twist of the single yarns that make up the plied yarn. Two or more plied yarns, when twisted together, in turn become a "cabled" yarn. Item "A" in the figure to the right is an untwisted single yarn, while item "B" is a plied yarn.

TWIST

A yarn can be twisted to form either a z-twist (twisted in the counterclockwise direction), or an s-twist (twisted in the clockwise direction). To look at it another way, you can untwist a z-twisted yarn by using your hands to untwist it clockwise, and you can untwist an s-twisted yarn by using your hands to untwist it counterclockwise. If you view a yarn under magnification, you could mentally superimpose a "z" over the component yarns in a z-twisted yarn, or an "s" over the component yarns in an s-twisted yarn.

The single yarns that make up a three-ply yarn might, for example, each be twisted in the "z" direction, while the three plies would be twisted in the "s" direction. The direction in which the plies are twisted in order to form the completed plied yarn is called the final twist.

Another significant factor for yarn is the amount of twist, usually expressed in either "TPI" (turns per inch) or "TPM" (turns per meter).

MEASURING THE "LINEAR DENSITY" OF A YARN

Yarn Number, Denier, Decitex, Cotton Count and other terms are ways of expressing the linear density, or weight per unit length, of a yarn. Industry, in purchasing yarns for any particular use, is concerned with this property, and the HTS also makes certain distinctions that relate to linear density.

For different types of yarn and for different fibers, there are different way of expressing this property. The following discussion is intended to address the most common expressions of linear density as well as number of plies in a yarn.

COTTON YARN NUMBERS

Normally used to describe spun (staple fiber) yarns, the English yarn number or English cotton yarn number indicates the number of 840-yard lengths in a pound of yarn. The lower the cotton yarn number, the heavier the yarn. Following is the conversion from English yarn numbers, commonly provided on invoices, to metric yarn numbers required by the HTS:

$$\begin{aligned}\text{English yarn no.} \times 1.6933 &= \text{Metric yarn no.} \\ &= \text{Number of 1000 meter lengths in a kilogram of yarn}\end{aligned}$$

The yarn number is usually shown in conjunction with the number of plies, e.g., 60/1 indicates yarn size 60, one ply (also referred to as "60's"), while 60/2 indicates two size 60 yarns, plied (also referred to as "60's two").

For plied yarns, for purposes of classifying yarns in HTS chapter 52, we take the yarn number of the individual singles yarns that make up a plied yarn, & convert it to metric. We do not use the "equivalent" yarn number of the plied yarn. e.g., A 60/2 yarn would be classified under the subheading for plied 60's yarns, not under the subheading for plied 30's yarn.

DENIER AND DECITEX

Normally used to describe filament-type yarns, denier indicates the weight in grams of 9,000 meters of yarn. Like the cotton yarn number, it is an expression of linear density for a yarn. But unlike the cotton yarn number, the higher the denier is, the heavier is the yarn. Following is the conversion from denier, commonly given on invoices, to decitex, which is required by the HTS:

$$\begin{aligned}\text{Decitex} &= 1.1111 \times \text{Denier} \\ &= \text{weight in grams of 10,000 meters of yarn}\end{aligned}$$

For a plied yarn, denier count may be followed by a specific statement regarding number of plies, e.g., 100D. - 3 Ply.

For tariff purposes, however, we are interested in the "singles equivalent," i.e., the denier (or decitex) of the overall plied yarn. In the above example, the singles equivalent denier would be 300 denier (or 333 decitex).

TENACITY

Tenacity is the amount of force (in pounds, grams, centinewtons or other units) needed to break a yarn, divided by the (unstrained) denier, decitex, or some other measure of weight per unit length.

Following are some common conversions related to tenacity:

$$\text{Grams/denier} \times 8.827 = \text{Centinewtons per tex}$$

$$\text{Millinewtons/decitex} = \text{Centinewtons per tex}$$

("Burst strength" or "bursting strength" is a characteristic of fabric that measures how much pressure can be applied to the surface before it bursts. It is often used to assess parachute material. Although you might be given this figure for a fabric, it has no direct relationship to, and cannot be used to calculate, the tenacity of the yarns within the fabric.)

IDENTIFYING HIGH-TENACITY AND NON-HIGH-TENACITY YARNS

The HTS defines high-tenacity yarn as yarn having a tenacity, expressed in cN/tex (centinewtons per tex), greater than the following:

for single yarn of nylon or other polyamides, or of polyesters: 60 cN/tex

for multiple (folded) or cabled yarn of nylon or other polyamides, or of polyesters: 53 cN/tex

for single, multiple (folded) or cabled yarn of viscose rayon: 27 cN/tex.

The surest way to distinguish high-tenacity yarns from those that are not high-tenacity is to have them tested in a laboratory. A laboratory will measure linear density (in denier or decitex) and then subject the yarn to controlled tension until the breaking point. The force exerted at the breaking point is then divided by the linear density to calculate the tenacity.

However, this cannot practically be done on every importation of filament yarns. If invoices are in conformity with section 141.89 of the Customs Regulations (quoted later in this booklet), they will indicate whether or not such a yarn is high-tenacity; such invoice statements can be verified by lab testing on a selective basis.

Absent the above information, however, there are several guidelines which, although not conclusive, may suggest whether a yarn is high-tenacity:

Industrial yarns would seldom be bleached or colored or dyed.

Filament "textile yarns" (the term the trade uses for yarns made for apparel and furnishings) generally would not exceed 900 denier (990 decitex), while "industrial yarns" (the trade term for yarns for industrial applications such as tires) would generally be 1100 denier (1210 decitex) and higher.

"Textile" yarns would generally be shipped in protective cartons because of their fragility, while tubes of the tougher "industrial" yarns may be stacked directly on skids and shrink-wrapped in plastic.

If a yarn can be easily pulled apart by hand, it is probably not a high-tenacity yarn.

The ultimate consignees or end-users of high-tenacity industrial yarns would normally be tire or rubber product manufacturers or converters. The automotive sector is by far the largest end-use market for these yarns. Another major application is in reinforcing automotive and appliance belts. High-tenacity yarn also has some other minor end uses such as thread for shoes, webbing or strapping, and ballistics fabrics used to make bullet-proof clothing.

The above are merely guidelines to assist you in screening "industrial" yarns from "textile" yarns, the latter being less likely to be high-tenacity. Only lab testing can conclusively distinguish high-tenacity from non-high-tenacity yarns.

SEWING THREAD

"Sewing thread," as used in headings 5204, 5401 and 5508, means multiple (folded) or cabled yarn (a) put up on supports (for example, reels, tubes) of a weight (including support) not exceeding 1,000 g; (b) dressed for use as sewing thread; and (c) with a final Z-twist (Section XI Note 5).

While most elements of this definition are easy to determine, the question of whether a yarn is "dressed" is problematic. The Explanatory Notes simply indicate that dressed sewing thread has been "given a finishing treatment," and say nothing about the amount of dressing that should be present.

Industry seems to have no universally accepted standard that dictates the amount of dressing that must be present. The American Cotton Handbook says "Each manufacturer develops through research and constant experimentation the processing techniques and formulations which are found to be most suitable for each type of thread and the use the trade makes of it."

The most recent definitive ruling on this issue was HQ 955524 of February 23, 1995. In that ruling, a thread with as little as 1.2% dressing by weight was ruled to be a sewing thread. The ruling stated "the EN's require only the presence of a coating substance. Thus, the yarns in question have been given a finishing treatment and are dressed according to this definition."

TABLE 1.1 YARNS PUT UP FOR RETAIL SALE

This table, for purposes of certain headings of Chapters 50, 51, 52, 54 and 55, summarizes the classification of yarns that are "put up for retail sale." It is adapted from the Explanatory Notes., and is subject to the exceptions listed below.

Way in which put up	Type of yarn (**)	Conditions under which the yarn is to be regarded as put up for retail sale
On cards, reels, tubes or similar supports	(1) Silk, waste silk or man-made filament yarns (2) Wool, fine animal hair, cotton or man-made staple yarns	Weighing 85 g or less (including support) Weighing 125 g or less (including support)
In balls, hanks or skeins	(1) Man-made filament yarn of less than 3,000 decitex, silk or waste silk yarns (2) Other yarns of less than 2,000 decitex (3) Other yarns	Weighing 85 g or less Weighing 125 g or less Weighing 500 g or less
In hanks or skeins comprising several smaller hanks or skeins separated by dividing threads which render them independent one of the other (***)	(1) Silk, waste silk, or man-made filament yarns (2) Wool, fine animal hair, cotton or man-made staple fibre yarns	Each of the smaller skeins to be of a uniform (weight of 85 g or less) Each of the smaller skeins to be of a uniform weight of 125 g or less

Exceptions:

The following yarns are never deemed to be put up for retail sale:

- (a) Single yarn of silk, waste silk, cotton or man-made fibres, however put up.
- (b) Single yarn of wool or of fine animal hair, bleached, dyed or printed, measuring 5,000 decitex or less, however put up.
- (c) Multiple (folded) or cabled yarn of silk or waste silk, unbleached, however put up.
- (d) Multiple (folded) or cabled yarn of cotton or man-made fibres, unbleached, in hanks or skeins.
- (e) Multiple (folded) or cabled yarn of silk or waste silk, bleached, dyed or printed, measuring 133 decitex or less.
- (f) Single, multiple (folded) or cabled yarn of any textile material, in cross-reeled hanks or skeins (Cross-reeling indicates that in building up the hank the thread crosses diagonally as the hank is being wound, preventing the hank from being split. Cross-reeling is the method usually adopted when the hanks are for dyeing.)
- (g) Single, multiple (folded) or cabled yarn of any textile material, put up on supports (e.g., cops, twisting mill tubes, pirns, conical bobbins or spindles) or in some other manner (for example, in the form of cocoons for embroidery looms, cakes made by centrifugal spinning) indicating its use in the textile industry.

Footnotes:

(**) References to the various textile materials apply also to such mixtures as are classified therewith under the provisions of Note 2 to Section XI (see Part (I)(A) of this General Explanatory Note).

(***) The hanks or skeins comprising several smaller hanks or skeins separated by dividing threads are formed of one continuous length of yarn which, on being cut, allows the component hanks or skeins to be readily separated. One or more dividing threads pass between the skeins and keep them separate from each other. These smaller hanks and skeins are often wrapped round with paper bands. Other hanks and skeins of one continuous length, or yarn with dividing threads which do not separate the main hank or skein into smaller hanks or skeins of uniform weight, but are simply intended to prevent tangling during processing (e.g., dyeing), are not regarded as put up for retail sale.

TABLE 1.2 OVERALL GUIDE TO CLASSIFYING TEXTILE YARNS

This is a questionnaire which serves as an overall guide to classifying yarns under the HTS. Answer questions in sequence, until you arrive at a 4-digit HTS#.

QUESTIONS	IF YES	IF NO
Rubber core, gimped (wound) with metal?	5605	Go to next question.
Rubber core, not gimped with metal?	5604	Go to next question.
Braided with tight, compact structure?	5607	Go to next question.
Braided, not with tight, compact structure?	5808	Go to next question.
Loop-wale (knitted)?	5606	Go to next question.
Chenille (pile-like)?	5606	Go to next question.
Metal present, for reinforcement?	5607	Go to next question.
Metal present, not for reinforcement?	5605	Go to next question.
Gimped?	5606	Go to next question.
Exceeds decitex requirement of Section XI Note 3?	5607	Go to next question.
Visibly plastic or rubber coated?	5604	Go to next question.
Of silk?	5004 - 5006	Go to next question.
Of wool or animal hair?	5106 - 5110	Go to next question.
Of cotton?	5204 - 5207	Go to next question.
Of vegetable fiber?	5306 - 5308	Go to next question.
Of paper?	5308.30	Go to next question.
Of man-made filament?	5402 - 5406	Go to next question.
Of man-made staple fiber?	5508 - 5511	Not a yarn of Section XI.

2. SPECIALTY YARNS

GIMPED YARN

A gimped yarn (heading 5606) consists of a yarn, around which is wrapped another yarn or filament or strip. It is distinguished from a twisted yarn in that the core yarn does not twist with the yarn that is wrapped around it; the surrounding yarn could be unwrapped and the core yarn would remain intact.

CORE-SPUN YARN

Core-spun yarns are often confused with gimped yarns. They differ in that they consist of a core (usually a monofilament or multifilament yarn), around which fibers (not yarns) are wrapped. A common example is a spandex filament core with a wrapping of cotton fibers. Since it is sometimes difficult for the unaided eye to distinguish fibers wrapped around a core from yarn wrapped around a core, it may be necessary to request laboratory analysis to identify such yarns. Core-spun yarns are not classified as gimped yarns but rather as basic yarns in the appropriate provisions in chapters 50-55 (depending on chief weight, generally).

BOUCLE YARN

A Boucle yarn might or might not be a gimped yarn, depending on how it is made. The term comes from the French word for "buckled," and refers to a yarn which has a rough appearance with "slubs" at random intervals through the yarn's length. This effect, can be created by using an outer gimping yarn to gather the core yarn unevenly, leaving the core yarn exposed at intervals (known as a "corkscrew" construction). A similar effect can be achieved by varying the tension between two yarns as they are being twisted together. If a boucle yarn is created by gimping, it would most likely be classified under heading 5606. If not it would most likely be classified in the appropriate provision in chapter 50-55.

CHENILLE YARN

A chenille yarn (heading 5606) is one that has a pile effect, i.e., it has pile yarns or fibers protruding from the yarn. It can be created by cutting certain woven fabrics lengthwise along a pair of warp yarns, so that the remaining pieces of weft yarn create the pile effect.

LOOP-WALE YARN

Sometimes known as "chainette," or "loop and wale" yarn, loop wale yarn is created by knitting a fabric that is narrow enough to have the appearance of a yarn. It is also covered by heading 5606.

TEXTURIZED YARN

Texturized yarns, also known as textured yarns or bulked yarns, are normally filament yarns of chapter 54, in which the component filaments have been crimped (i.e., a regular pattern of wrinkles has been imparted to the filaments) to create a softer look and feel. This crimping is achieved by any one of a number of methods, such as knitting a fabric, heat setting it and then "de-knitting" it to yield crimped yarns, or running the yarns through a "stuffer box" which crimps and sets the yarn. They are normally classified in the appropriate subheadings of chapter 54 (see flowchart later in this book).

METALIZED YARNS

Metalized yarns can take many forms. Some examples:

Metal wire combined with textile.

Metalized strip, consisting of a core of metal foil or of plastic (often polyester) film coated with metal dust, sandwiched by means of adhesive between two layers of plastic film (e.g., "Lurex").

Gimped ("supported") yarn, consisting of a man-made fiber yarn around which is wrapped a metalized strip.

Plied yarns, in which one or more of the plies is metalized strip, and others are man-made fiber.

All of these are "metalized yarns" classifiable under HTS 5605.

Often, the actual amount of metal present is quite small in relation to the weight of the textile fibers. However, in general, any of these yarns that have metal present, whatever the proportion of metal present, is classified as a metalized yarn under heading 5605 (reference: Explanatory Notes, page 777).

When classifying a fabric etc. made from such metalized yarn, we count the entire weight of the metalized yarn as "other" textile fibers when making any "chief weight" determination (reference: HQ 084861 and HTS Sect. XI Note 2(B)(a)).

TO SUMMARIZE: for classification purposes, metalized yarns are considered "other" textile fibers, and these yarns are treated that way no matter how little metal is present.

Following are guidelines for classifying decorative metalized yarns and braids, with outer wrap of metalized strip/yarn, and inner core of some other material (of the type normally sold for gift-wrapping or crafts):

Core of rubber thread, outer covering of braided metalized strip/yarn: Heading 5604. The Explanatory Note indicates that 5604 includes rubber thread covered by "plaiting" (braiding). The Explanatory Note for heading 5605 does not mention plaiting or braiding; it appears the intent is for heading 5605 to exclude braid. Heading 5808 ("braid in the piece") also describes this type of item, but heading 5604 ("rubber thread and cord, textile covered") is more specific, per HQ 951886, GRI 3(a). NY 873047.

Core of rubber thread, outer covering of gimped metalized strip/yarn (i.e., metalized strip/yarn is wrapped, not braided, around the rubber core): Heading 5605. Both headings 5604 and 5605 appear to describe the item with equal specificity. In both cases the Explanatory Notes allow a gimped construction. GRI 3(c). NY 871525.

Core of textile yarn, outer covering of braided metalized strip/yarn: Heading 5808. Heading 5605 appears to exclude braided constructions, since they are not mentioned in the Explanatory Note. NY 883073.

Core of textile yarn, outer covering of gimped metalized strip/yarn (i.e., Metalized strip/yarn is wrapped, not braided, around the core): Heading 5605. Explanatory Note specifically describes metalized yarn constructed by gimping. NY 895400.

3. CORDAGE, BRAID ETC. OF HEADINGS 5607 AND 5808

IDENTIFYING TWINE, CORDAGE, ROPE AND CABLE

The classification table found in the General Explanatory Note for Section XI, reproduced below, provides the most useful guide available, on when yarns are classified in heading 5607 versus other places in Section XI. It is notable that:

Gimped, chenille, loop wale, metalized, wool, animal hair and paper yarns that are of twisted construction are never classified under heading 5607.

Multifilament yarn without twist or with a twist of less than 5 turns per meter, and monofilament, of Chapter 54, are never classified in heading 5607.

Yarns that are of twisted construction and made of silk, flax, true hemp, coir, cotton, other vegetable fibers and man-made fibers are classified in heading 5607 if they meet certain minimum decitex requirements.

Braid is classified in either heading 5607 or in heading 5808, depending on its structure (see further discussion below). If braid is tightly plaited and has a compact structure, it is classified in heading 5607 regardless of its decitex.

In a twisted yarn, the component single plies which make up the final product are simply twisted, either clockwise or counterclockwise, to combine the various plies and to add strength to the yarn. In a braided yarn, the various yarns which make up the final product are interlaced in a diagonal manner. It can sometimes be easily identified by compressing the cord lengthwise (grasping the cord in two places that are close together and pushing those two segments of the cord closer together). This causes the braid structure to loosen and increase in diameter so that the plaited structure is more obviously visible.

BRAID: HEADING 5607 VERSUS HEADING 5808

As noted above, the distinction between braid of heading 5607 and braid of heading 5808 is primarily in the structure of the braid. Braid that is tightly plaited and has a compact structure is to be classified in heading 5607, while the less compact, not tightly plaited braid is to be classified in heading 5808. This guideline leaves much room for interpretation. In administrative rulings and informal opinions given to Customs field officers, flat braids (such as certain types of shoe-lace material) have generally been considered as not having a compact structure and thus have been classified in heading 5808. Braids for which it is difficult to say whether they are tight and compact, but which are primarily decorative in nature (for instance, those having decorative-type metalized threads) have been classified in heading 5808, which is judged also to cover materials that are more decorative in nature.

Braid which is classified in heading 5808 has been considered to be a "fabric." This becomes significant when deciding where to classify articles made up of such materials.

"OF WIDE NONFIBRILLATED STRIP"

HTS 5607.41.10 and 5607.49.10 provide for rope etc. made of wide nonfibrillated strip. The term "wide" means that the strip is more than 25.4 mm (1") wide in its unfolded, untwisted and uncrimped condition. But there has been some question of what is meant by "nonfibrillated."

Ruling HQ 083629 establishes that a fibrillated strip is one that is split into VISIBLE interconnecting fibrils (fiber-like tears or splits that run along the lengthwise direction of the material).

Non-fibrillated strip is strip (over 1" wide) which, when carefully untwisted, is found to be intact, i.e., not split into visible interconnecting fibrils. Merely having its molecules oriented does not make a strip "fibrillated" (HQ 083894 follows the same principle). The term "of wide nonfibrillated strip", when applied to twine, cordage, rope or cable, refers to that which contains more than 65 percent by weight of nonfibrillated strip.

TABLE 3.1 CLASSIFYING TEXTILE YARNS, TWINE, CORDAGE, ROPE AND CABLE

Yarns are classified according to their characteristics (measurement, whether or not polished or glazed, number of plies) in those headings of Chapters 50 to 55 relating to yarns, as twine, cordage, rope or cables under heading 56.07, or as braids under heading 58.08. This table shows the correct classification in each individual case:

Type (*)	Characteristics determining classification	Classification
Reinforced with metal thread	In all cases	Heading 56.07
Of metallised yarn	In all cases	Heading 56.05
Gimped yarn, other than those of headings 51.10 and 56.05, chenille yarn and loop wale yarn	In all cases	Heading 56.06
Braided textile yarn	(1) Tightly plaited and with a compact structure (2) Other	Heading 56.07 Heading 58.08
Other: - Of silk or waste silk (**)	(1) Measuring 20,000 decitex or less (2) Measuring more than 20,000 decitex	Chapter 50 Heading 56.07
- Of wool or other animal hair	In all cases	Chapter 51
- Of flax or true hemp	(1) Polished or glazed: (a) Measuring 1,429 decitex or more (b) Measuring less than 1,429 decitex (2) Neither polished nor glazed: (a) Measuring 20,000 decitex or less (b) Measuring more than 20,000 decitex	Heading 56.07 Chapter 53 Chapter 53 Heading 56.07
- Of coir	(1) Of one or two plies (2) Of three or more plies	Heading 53.08 Heading 56.07
- Of paper	In all cases	Heading 53.08
- Of cotton or other vegetable fibers	(1) Measuring 20,000 decitex or less (2) Measuring more than 20,000 decitex	Chapter 52 or 53 Heading 56.07
- Of man-made fibers (including those yarns of two or more monofilaments of Chapter 54 (**))	(1) Measuring 10,000 decitex or less (2) Measuring more than 10,000 decitex	Chapter 54 or 55 Heading 56.07

Footnotes.

(*) References to the various textiles materials apply also to such mixtures as are classified therewith under the provisions of Note 2 to Section XI (see Part (I) (A) of this General Explanatory Note).

(**) Silk worm gut of heading 50.06, multifilament yarn without twist or with a twist of less than 5 turns per metre, and monofilament, of Chapter 54, and man-made filament tow of Chapter 55 do not in any circumstances fall in heading 56.07.

4. SILK FILAMENTS, FIBERS & YARNS OF CHAPTER 50

Silk is the only organic fiber that is in the form of a filament, and it is produced by the silkworm. In spinning its cocoon for its metamorphosis from the chrysalis state, the silkworm forms in its internal glands a glutinous liquid composition of fibroin and sericin which it discharges through two external orifices called "spinnerets" located below its mouth. When emitted, the two threads combine into a single thread and harden immediately upon exposure to air. The filaments adhere to each other to form the cocoon shell.

After the cocoons are harvested, they are "reeled" by placing them in a basin of hot water to loosen the filaments, pulling the filament ends of several cocoons (typically 4 to 20 of them) together, and winding them up onto a "reel." In this process, the several filaments twist together slightly, and adhere to each other because of the natural gum on their surface. This reeling process results in a single "thread" of silk, which is classified as raw silk in heading 5002. It appears to the unaided eye to be a single filament, but in actuality it is composed of several very fine filaments. "Thrown" silk (of heading 5004) consists of yarns obtained by twisting (either singly or two or more together) the raw silk threads of heading 5002.

5. WOOL & HAIR FIBERS & YARNS OF CHAPTER 51

OUTLINE OF THE WOOL PRODUCTION PROCESS

Following is a summary of the usual steps in the processing of first quality wool from sheep to yarn. Not every type of wool or hair will go through all of these steps; this is intended as more of a generic listing of the possible steps:

- (1) Shearing is cutting the wool from the sheep by hand or mechanical means. Wool at this stage is called "grease" wool because the natural oil of the sheep remains in the wool. "Shorn" wool is cut in this manner from either the live sheep or from the pelt of the dead animal; "pulled" wool is pulled from the pelt of the dead animal after fermentation or appropriate chemical treatment.

Tariff classification at the end of this stage would be somewhere in the following ranges: 5101.11.10-5101.21.40, 5101.29.10-5101.29.40.

- (2) Trimming is cutting off the poorer quality edges so the grade that is to be shipped is roughly uniform.

This stage of processing would not change the tariff classification from what it was after shearing.

- (3) Separation according to quality, in some cases, is done at the time of shearing.

This stage of processing would not change the tariff classification from what it was after shearing and trimming.

- (4) Packaging of the raw shorn wool consists of rolling it up, tying and packing it loosely in sacks weighing about 225 to 300 pounds, for shipment to mills.

This stage of processing would not change the tariff classification from what it was after shearing, trimming and separation.

- (5) Sorting and Grading is done by skilled workers who determine grades by type, length, fineness, elasticity and strength.

This stage of processing would not change the tariff classification from what it was after shearing, trimming, separating and packaging.

- (6) Scouring consists of a thorough washing in warm water, soap and a mild solution of soda ash or other alkali, to remove natural oils (grease, also known as "yolk") and vegetable matter. This causes the raw wool to lose from 20 to 80 percent of its original weight. After scouring, rollers are used to squeeze out water.

Alternatives to scouring include washing in hot water only, to remove most grease and dirt; treatment with volatile solvents such as benzene to remove grease; or frosting to freeze the wool and remove the grease in a brittle state.

This stage of processing would not change the tariff classification from what it was after shearing, trimming, separating, packaging, sorting and grading.

- (7) The "de-greasing" process contemplated by the tariff occurs in step (6) above in the water, detergent and alkaline baths, and is fully completed at the time the water rinse (the fifth bath in the schematic) occurs. After this process is completed, optional mothproofing and/or bleaching agents may be introduced. They are, in other words, steps that advance the wool beyond the de-greased condition.

Tariff classification at the end of this stage: 5101.21.60 or 5101.29.60.

- (8) Carbonizing occurs if the wool is not sufficiently clear of vegetable matter after scouring, and consists of a dilute acid bath which burns out the foreign matter.

Tariff classification at the end of this stage: 5101.30.10-5101.30.40.

- (9) Drying is controlled so that the wool retains about 12 to 16 percent of the moisture that was added, to condition it for further handling.

This stage of processing would not change the tariff classification from what it was after carbonizing.

- (10) Oiling consists in treating the wool with various oils, to keep it from becoming brittle and to lubricate it for the spinning operation.

Tariff classification at the end of this stage: 5101.30.60.

- (11) Dyeing may be done after oiling and before further processing, but in some cases wool may be dyed at the top, yarn or fabric stages.

Tariff classification at the end of this stage: 5101.30.60.

- (12) Blending of different grades of wool may be done (optionally) at the next stage.

This tariff classification at the end of this stage may or may not change, depending on which types of fiber are blended (see Chapter 51 Additional U.S. Note 2(e) regarding "unimproved" wool).

- (13) Carding serves to disentangle the fibers to prepare them for spinning, and is done by passing the fibers between rollers covered with fine wire teeth. This stage produces wool in the form of loose, untwisted, rope-like "sliver," ready for spinning into yarn. Yarn that is spun from carded wool is known as "woolen" yarn.

Tariff classification at the end of this stage: 5105.10.

- (14) Gilling and Combing are additional processes used only in the production of smoother "worsted" yarns. It consists of further drawing of the fibers along fine-toothed combs, to remove the shorter fibers and further align the longer ones, to produce "tops," a smoother, more uniform sliver suitable for spinning into "worsted" yarns.

Tariff classification at the end of this stage: 5105.21-5105.29.

OUTLINE OF THE CASHMERE PRODUCTION PROCESS

Let us take a look at a variation on the wool process involving a fine animal hair such as cashmere:

- (1) Shearing or Combing serve to remove the wool from the cashmere goat.

Shearing consists simply of cutting the hair off the animal with shears. Under this method, both the desirable underdown and the undesirable coarser "guard" hair are removed in the same proportion in which they existed on the animal.

The more commonly used combing method removes hair by pulling a comb through the animal's hair; this tends to remove a larger proportion of underdown and leave more of the coarser hair on the animal. Thus, combing results in a product which has a higher percentage of underdown than does shearing.

Tariff classification at the end of this stage: 5102.10.40.

- (2) Separation according to quality, in some cases, is done at the time of shearing. The sorting is generally according to:

the color (the whiter the color, the higher the value),

length of staple fiber (longer length has higher value),

fiber fineness (the lower the fiber diameter in microns, the higher the "grade," the finer the fiber and the higher the value), and

the percentage yield of underdown (higher percentage yield has higher value - cashmere removed by combing generally has a yield in the range of 50%, while that removed by shearing has a yield of around 25%).

Tariff classification at the end of this stage: 5102.10.40.

- (3) Scouring consists of washing the hair in a series of four baths to remove grease and other foreign matter. There generally are three sequential baths of detergent and hot water, followed by a final rinse bath with water only. If desired by the customer, bleaching is added during one of the baths. These four baths achieve disinfecting as well as physical cleaning, although sometimes if there is a danger of anthrax, a fifth bath of formaldehyde is used.

Tariff classification at the end of this stage: 5102.10.40.

- (4) Pre-opening

Tariff classification at the end of this stage: 5102.10.40.

- (5) Dehairing serves to separate the coarser guard hairs from the desirable underdown hairs. Dehairing machines are modified carding type machines that operate primarily on the principle that the coarse guard hairs are heavier than the fine underdown. When the co-mingled mass of fine and coarse fibers are presented to the dehairing machine, the centrifugal force of the high

RPM carding rolls throws the heavier coarse hairs underneath the de-hairer while the finer underdown travels through the machine. After dehairing, the expected coarse hair content is only 0.1% to 3.0%.

Because of the type of process that occurs, some would argue that dehairing is a carding process, but Customs' position (HQ 950906) is that it is not. The process does, however, advance the fiber beyond the de-greased or carbonized condition. It also greatly increases the value or price of the fiber.

Tariff classification at the end of this stage: 5102.10.90.

- (6) There is generally no carding process for cashmere (although some would argue that dehairing is a process similar to carding). Combing follows dehairing, and consists of further drawing the fibers along fine-toothed combs, to remove the shorter fibers and further align the longer ones, to produce "tops," suitable for spinning into yarns. The shorter fibers that are thrown off in this process are known as "noils."

Tariff classification at the end of this stage: 5105.30.00.

OTHER ANIMAL HAIRS

Camel hair, produced chiefly in China, Mongolia and the CIS (former Soviet Union), is subject to similar processes as cashmere; valuable underdown must be separated from coarser hairs. It must be scoured and dehaired for commercial use.

Cashgora is a hybrid goat fiber resulting from the cross-breeding of cashmere and mohair-type goats, produced commonly in New Zealand, the CIS, Turkey and Mongolia. It is subject to similar processes as cashmere and camel hair.

Angora rabbit hair is produced in China, and is different from Cashmere in that its coarse hairs are not necessarily objectionable, so that in most cases the fiber is used without dehairing.

NOTES ON YIELD AND CONDITIONED WEIGHT FOR WOOL

Certain duties in Chapter 51 are based on the "clean kg.," which is the clean yield in kilograms. The HTSUSA defines "clean yield," except for purposes of carbonized fibers, as the absolute clean content (i.e., all that portion of the merchandise which consists exclusively of wool or hair free of all vegetable and other foreign material, containing by weight 12 percent of moisture and 1.5 percent of material removable from the wool or hair by extraction with alcohol, and having an ash content of not over 0.5 percent by weight), less an allowance, equal by weight to 0.5 percent of the absolute clean content plus 60 percent of the vegetable matter present, but not exceeding 15 percent by weight of the absolute clean content, for wool or hair that would ordinarily be lost during commercial

cleaning operations. For purposes of carbonized fibers, the term "clean yield" means in the condition as entered.

Wool is often bought on the basis of "conditioned weight," which is the dry weight plus a fixed percentage of expected moisture content by percent of weight, or "moisture regain." This is usually 15% to 18% depending on the system employed. A term such as "conditioned at 17%" for a wool purchase would indicate that the fiber was bought on the basis of a moisture regain of 17%. Under CIE 1235/57 (which, although written under the previous valuation system and before the HTS, still is instructive), valuation was based on the price per conditioned kilogram, while any specific duty rate was assessed against the actual landed net weight in kilograms, adjusted for clean yield.

TABLE 5.1 GRADES OF WOOL FIBER

The HTS has separate provisions for wool based on its grade, which is a number which expresses the fine-ness of the fibers. The grade is a standard unit of measurement which is not the same as the fiber diameter in microns. It can be related to the fiber diameter in microns as shown on the following table.

Grade	Average Fiber Diameter, μm	Max Standard Deviation, μm
Finer than 80s	under 17.70	3.59
80s	17.70 to 19.14	4.09
70s	19.15 to 20.59	4.59
64s	20.60 to 22.04	5.19
62s	22.05 to 23.49	5.89
60s	23.50 to 24.94	6.49
58s	24.95 to 26.39	7.09
56s	26.40 to 27.84	7.59
54s	27.85 to 29.29	8.19
50s	29.30 to 30.99	8.69
48s	31.00 to 32.69	9.09
46s	32.70 to 34.39	9.59
44s	34.40 to 36.19	10.09
40s	36.20 to 38.09	10.69
36s	38.10 to 40.20	11.19
Coarser than 36s	over 40.20	

(Based on the Official Standards of the United States for Grades of Wool as promulgated by the U.S. Department of Agriculture, effective January 1, 1966.)

6. COTTON FIBER & YARNS OF CHAPTER 52

COTTON FIBER PRODUCTION

Cotton fiber that has not been carded or combed is generally classified according to staple length. In some cases, the variety of cotton is also significant. Before we discuss the complex scheme of classifications and quotas that apply to raw cotton, it might be helpful to summarize the usual steps in the process of making cotton yarn from raw fiber:

- (1) Harvesting: Cotton is picked in the form of "bolles" from the cotton plant. At this point the cotton is in small clusters 1 to 1½ inches in diameter, which include seeds and other undesired plant material, and is referred to as "seed cotton."

Tariff heading at the end of this stage: 5201.

- (2) Ginning: The next step in cotton processing is to remove the seeds, using a cotton gin. The product of this process is sometimes referred to as "lint cotton" or "ginned cotton."

After separation from the cotton fibers by ginning, the seeds are still covered with a fine down formed of very short fibers (usually less than 5 mm long), known as "cotton linters." Linters are too short for spinning, but are used in the manufacture of man-made fibers (e.g., rayon), cellulose plastics, certain varieties of paper, filter blocks and as a filler in the rubber industry.

Tariff heading at the end of this stage: 5201. Linters in subheading 1404.20.

- (3) Baling: Lint cotton is baled at the cotton gin after the seeds have been removed. The bale supplied to textile mills averages 500 pounds in weight.

Tariff heading at the end of this stage: 5201.

- (4) Blending: Cotton taken from a number of bales is blended together and separated into large tufts.

Tariff heading at the end of this stage: 5201.

- (5) Cleaning: In the step cleaner, large tufts of cotton are reduced in size and quantities of trash (stems, leaf and seed fragments etc.) are removed. In the opener-cleaner, tufts are further reduced in size and fluffed, and large quantities of trash are removed.

Tariff heading at the end of this stage: 5201.

- (6) Picking: Trash removal is continued, and small tufts are formed into a continuous sheet known as "picker laps," which are approximately 40 inches wide and 1 inch thick and weigh about 40 pounds each.

Tariff heading at the end of this stage: 5201.

- (7) Carding: The picker lap is processed into a thin mist-like sheet which is formed into a loose rope-like strand of fibers known as "card sliver."

Tariff heading at the end of this stage: 5203.

- (8) Combing: If the fiber is intended for finer yarns, it is put through an additional straightening, in which fine-toothed combs continue straightening the fibers until they are highly parallel. This process results in "comb sliver," which appears smoother and finer than card sliver.

Tariff heading at the end of this stage: 5203.

- (9) Drawing: A number of card slivers are brought together and drawn out to form a single rope-like strand known as "drawn sliver," having straightened fibers and improved uniformity.

Tariff heading at the end of this stage: 5203.

- (10) Roving: The drawn sliver is further drawn out into a smaller strand of fibers known as roving.

Tariff heading at the end of this stage: 5203.

- (11) Spinning: The roving is still further drawn out into a tiny strand of fibers and twisted into a yarn on either a ring spinning system or an open-end spinning system.

Tariff heading at the end of this stage: 5205-6.

A NOTE ON "HARSH OR ROUGH" COTTON

Despite much research, going back to hearing reports by the US Tariff Commission in the 1920's and also into various trade and industry publications (some crumbling and yellowing with age), we have been unable to find a definition for "harsh or rough" cotton. The variety of harsh or rough cotton that has a staple length of 29.36874 mm (1-5/32 inches) (see HTS 5201.00.24 and 5201.0028) is identified in the background documents as Peruvian Tanguis cotton. But the harsh or rough cotton that has a staple length under 19.05 mm (¾ inch) classified under HTS 5201.0005, is apparently a different variety and is not defined or described in the background documents.

Even contacts in the USDA could provide no definition of this term. Based on what little information is available, it appears that the term "harsh or rough" has nothing to do with impurities, and something to do with the crinkliness of the fibers. However, USDA contacts did indicate that cotton with a staple length of less than $\frac{3}{4}$ " is extremely rare, and would probably be found only in the Indian subcontinent. Since the term was created by USDA in 1939, without any apparent definition or guidelines, and since there was mention in the 1958 Tariff Commission study to the effect that USDA will test for this, our approach, as far as lab-testing is concerned, should be to leave the determination up to USDA in all cases by having Customs labs refer that type of testing to Agriculture Department labs.

WASTE PRODUCTS FROM COTTON FIBER PROCESSING

At each of the above stages of processing, there are cotton fibers and other byproducts which are thrown off and recovered for other uses. Except for cotton linters discussed above, they are generally classified under heading 5202.

"Gin motes," sometimes referred to simply as "motes," are a by-product of the cotton ginning process, and consist of reclaimable cotton lint mixed with bits of leaves and bark (5202.9950) (Note: "regins" are gin motes that have been put through a willowing and cleaning process, and are generally classified not as waste, but as cotton fiber of heading 5201).

"Picker motes" are the waste materials extracted during the opening, cleaning and picking processes. This waste contains the heavier trash such as stems, seeds, seed coat fragments, etc., and some fiber (5202.9950). It is marketable and usually used for padding.

"Picker lap waste" or "lap waste" occurs as the ends of the laps are removed from machines to ensure even and uniform splicing when replenishing the supply package fed later to the carding machinery. Lap waste is good cotton and is later blended in predetermined amounts with the regular mix (5202.9905, 5202.9910 or 5202.9930).

"Card strips" are a waste byproduct of the carding process. They include:

"Card cylinder and doffer strips" which are the fibers that gradually collect between the wires of the card clothing on the carding machine. This waste has to be removed periodically from the machine. It is used primarily by makers of coarse industrial yarns and fabrics.

"Card flat strips" includes fibers, neps (small knotted or tangled fiber fragments) and dirt that accumulate on the wire clothed flats during carding. As the flats revolve, the waste is removed so that a clean surface is presented to the carding cylinder. This waste is used primarily by makers of coarse yarns and fabrics.

"Card motes and fly" are waste removed from the picker lap by the combing action of the card. It is a much lower form of waste than the card strips described above, and is composed of very short

fibers, seed coat fragments, dirt, etc. It is used in padding, mattresses and is occasionally used for blending into mixes for low grade coarse industrial yarns (5202.9950).

"Sliver waste" is a clean white waste that occurs at the carding, combing and drawing processes during the "piecing-up" or splicing operations (5202.9905, 5202.9910 or 5202.9930). It can be reworked by blending with raw stock in predetermined amounts.

"Noils" or "comber noils" are a byproduct of combing, and they are the short fibers which are combed out and completely separated from the longer fibers. It is used in blends for the manufacture of yarns and fabrics (5202.9950).

"Roving waste" is a clean white waste resulting from replenishing the supply packages in the spinning frame. It is reworkable by blending with the raw stock mix in small amounts (5202.9905, 5202.9910 or 5202.9930).

COTTON CLASSIFICATIONS AND QUOTAS: HTS CHAPTERS 52 AND 99

Under NAFTA and GATT, all of the past absolute quotas on cotton fiber and waste have been replaced with a system of tariff-rate quotas, which will be slowly phased out over time. In addition, the Secretary of Agriculture, under certain market conditions, announces "Special" quotas for Upland Cotton. Following are outlines of the various types of cotton quotas, based on the Harmonized Tariff Schedule of the United States Annotated (HTSUSA), as they apply to imports entered for the 1996 calendar/quota year.

■ Under NAFTA, the quantity of cotton imported duty-free from Mexico is 10,609,000 kilograms for 1996. This quantity will increase annually until the year 2003 when limitations will cease to apply on qualifying goods. Imports above 10,609,000 kilograms in 1996 will pay a higher tariff excluding harsh/rough cotton under 3/4 inches staple length which enters duty-free in unlimited quantities.

■ Under the Uruguay Round Agreements Act, Section 22 absolute quotas were replaced by tariff-rate quotas (TRQs) on January 1, 1995. TRQs are a two-tier tariff system under which a specified "in-quota" quantity of an article enters at lower "in-quota" tariff rates, and "over-quota" quantities enter at substantially higher "over-quota" rates. The "in-quota" quantity excludes imports from Mexico and from countries which are not members of the World Trade Organization (WTO), or which are not specifically listed in the quota. The "in-quota" TRQ quantities for cotton are listed under Additional U.S. Notes 5(b), 6(b), 7(b) and 8(b) of HTSUSA chapter 52. The in-quota quantity will increase annually until the year 2000, after which it will remain at the level reached in that year.

■ Under the Special Cotton Import Quota, a special quota on UPLAND cotton is triggered when the price conditions set forth in section 103B(a)(5)(F) of the Agricultural Act of 1949, as amended, are met, and the United States Department of Agriculture (USDA) issues an announcement which

specifies a quantity that may be entered under HTSUSA 9903.5201 - 9903.5220 during a 180-day period following the effective date of such determination and announcement. Announcements may be made on a weekly basis. Imports must be accompanied by: (1) an original certificate from a foreign government agency official of the country of origin attesting that the cotton is of a variety of *Gossypium Hirsutum* (also known as Upland Cotton); (2) an importer certification that the cotton was purchased not later than 90 days after the quota was established; and (3) be entered under the terms and conditions in US Note 6(a) of Subchapter III of Chapter 99 of the HTSUSA. See last paragraph, below, on General Note 15 of the HTSUSA.

■ Under the Special Limited Global Import Quota, a special quota on UPLAND cotton is triggered when the price conditions set forth in section 103B(n) of the Agricultural Act of 1949, as amended, are met, and USDA issues an announcement which specifies that quantity that may be entered under HTSUSA 9903.5200 during a 90-day period following the effective date of such determination and announcement. Imports must be accompanied by: (1) an original certificate from a foreign government agency official of the country of origin attesting that the cotton is of a variety of *Gossypium Hirsutum* (also known as Upland Cotton); (2) an importer certification that the cotton was purchased not later than 90 days after the quota was established; and (3) be entered under the terms and conditions in US Note 6(b) of Subchapter III of Chapter 99 of the HTSUSA. See last paragraph, below, on General Note 15 of the HTSUSA.

■ General Note 15 of the HTSUSA states that whenever a product of chapter 52 is (1) subject to a TRQ (the NAFTA or Uruguay Round quotas), and (2) subject to provisions of subchapter IV of Chapter 99 HTSUSA (the Secretary of Agriculture's "Special" quotas), entries of such products shall not be counted against the quantities specified as the in-quota TRQ quantity. General Note 15(e) specifically lists as an exclusion "cotton entered under the provisions of US Note 6 to Subchapter III of Chapter 99 and subheadings 9903.5200 through 9903.5220 inclusive." Such imports count against the special quota quantity of HTSUSA 9903.5200 through 9903.5220 which are in the USDA announcement(s). Imports are dutiable at the tariff rates under 5201.0012, 5201.0022 or 5201.0055 depending on staple length.

See the current HTSUSA and the Informed Compliance Publication Raw Cotton: Tariff Classification and Import Quotas, dated May 13, 1996, for more details.

COTTON YARNS

Most of the types of distinctions that matter in classification of cotton yarns have already been discussed. This includes the (metric) cotton yarn number, whether the yarn is sewing thread or is put up for retail sale, and whether it is plied. The remaining question is whether a yarn is uncombed or combed.

Uncombed cotton yarns are those made from the carded fibers described above. These fibers have been subjected to carding which serves to roughly align the fibers. Under magnification, these yarns will appear to have rough edges with some stray fibers and some which are not quite parallel.

Combed cotton yarns are those made from the combed cotton fibers. These fibers have been subject to an additional process which removes the shorter fibers and more perfectly aligns the fibers that remain. This results in a smoother appearance than that of carded yarns.

The tariff subheading outline on the following page is intended to serve as a guide to classifying cotton yarns "at a glance" at the six-digit (subheading) level. Refer to discussions earlier in this booklet, for definitions of the key terms.

TABLE 6.1 COTTON YARNS AT A GLANCE: HTS 6-DIGIT SUBHEADINGS

(all yarn number measurements are per single yarn)

5204 COTTON SEWING THREAD, WHETHER OR NOT PUT UP FOR RETAIL SALE:

Not put up for retail sale:

5204.11 Containing 85% or more by weight of cotton

5204.19 Other

5204.20 Put up for retail sale

5205 COTTON YARN (OTHER THAN SEWING THREAD), CONTAINING 85% OR MORE BY WEIGHT OF COTTON, NOT PUT UP FOR RETAIL SALE:

Metric Yarn Number	English Yarn Number	Single, not combed	Single, combed	Plied, not combed	Plied, combed
$nm \leq 14$	$ne \leq 8.27$	5205.11	5205.21	5205.31	5205.41
$14 < nm \leq 43$	$8.27 < ne \leq 25.39$	5205.12	5205.22	5205.32	5205.42
$43 < nm \leq 52$	$25.39 < ne \leq 30.71$	5205.13	5205.23	5205.33	5205.43
$52 < nm \leq 80$	$30.71 < ne \leq 47.24$	5205.14	5205.24	5205.34	5205.44
$80 < nm \leq 94$	$47.24 < ne \leq 55.51$	5205.15	5205.26	5205.35	5205.46
$94 < nm \leq 120$	$55.51 < ne \leq 70.87$	5205.15	5205.27	5205.35	5205.47
$nm > 120$	$ne > 70.87$	5205.15	5205.28	5205.35	5205.48

5206 COTTON YARN (OTHER THAN SEWING THREAD), CONTAINING LESS THAN 85% BY WEIGHT OF COTTON, NOT PUT UP FOR RETAIL SALE:

Metric Yarn Number	English Yarn Number	Single, not combed	Single, combed	Plied, not combed	Plied, combed
$nm \leq 14$	$ne \leq 8.27$	5206.11	5206.21	5206.31	5206.41
$14 < nm \leq 43$	$8.27 < ne \leq 25.39$	5206.12	5206.22	5206.32	5206.42
$43 < nm \leq 52$	$25.39 < ne \leq 30.71$	5206.13	5206.23	5206.33	5206.43
$52 < nm \leq 80$	$30.71 < ne \leq 47.24$	5206.14	5206.24	5206.34	5206.44
$nm > 80$	$47.24 < ne \leq 55.51$	5206.15	5206.25	5206.35	5206.45

5207 COTTON YARN (OTHER THAN SEWING THREAD) PUT UP FOR RETAIL SALE:

5207.10 Containing 85% or more by weight of cotton
5207.90 Other

7. VEGETABLE FIBERS & YARNS OF CHAPTER 53; PAPER YARNS

CLASSIFYING VEGETABLE FIBERS

It is very important to recognize that headings 5301-5305 are not uniform as to what types of vegetable materials are covered. Some vegetable materials are covered throughout the full range, from plants as harvested, through to fibers ready for spinning; while other materials are more limited, as follows:

Headings 5301-5302 (flax or true hemp) may be either in the condition as harvested (raw), or processed somewhat beyond the raw state. They may be in condition ready for spinning, but they may not be spun (see yarns, below).

Heading 5303 (jute and other textile bast fibers except for flax, true hemp and ramie), covers the stalks of these plants, as well as more advanced products (but not spun yarns). Generally (see exception below for broom fibers), the products of heading 5303 may be the raw stalks removed from the stems, or may be crushed, carded or combed in preparation for spinning. Included in this group, as listed in the Explanatory Note (alphabetized here for convenience), are:

Abroma augusta
Abutilon hemp
Abutilon avicennae
Ambari hemp

Aramina
Benares hemp
Bimlipatam
Bimli jute

Bombay hemp
Cadillo
Caesarweed
Calcutta hemp

Carapicho	Dah	Nettles
China jute	Devil's cotton	Paka
Ching-ma	Escobilla	Papoula de Sao Francisco
Clappertonia ficifolia	Gambo hemp	Polompon
Congo jute	Guaxima	Punga
Corchorus olitorius	Guaxima	Queensland hemp
Corchorus capsularis	Hibiscus cannabinus	Red jute
Crotalaria juncea	Hibiscus hemp	Rosella hemp
Cuba jute	Hibiscus sabdariffa	Roselle
	Indian flax	Siam jute
	Indian	Siam jute
	Java jute	Sida
	Julburpur jute	Sunn
	Kenaf	Thespesia
	Kenaf	Tien-Tsin
	King-ma	Tossa
	Madagascar jute	Triumfetta
	Madras hemp	True jute
	Malva roxa	Urena sinuata
	Malva blanca	Urena lobata
	Malvaisco	White jute
	Meshta	

The group (heading 5303) also includes broom fibers, from the bast of the Spanish broom (*Spartium junceum*) or common broom (*Cytisus scoparius*), except that broom fibers and other bast fibers that are NOT of a kind usually used for textiles are covered in chapter 14; they fall in 5303 ONLY IF they have been crushed, carded or combed in preparation for spinning (see "spinning" guidelines in discussion of headings 5304-5305, below).

Headings 5304-5305 cover certain vegetable materials obtained from the leaves of Sisal, genus *Agave*, Abaca, Coconut and various other plants, as well as ramie, which is obtained from the stalk of its plant. Included in this group, as listed in the Explanatory Note (alphabetized here for convenience), are:

Abaca	China grass bast	Peat fibre *
Agave lechugilla *	Coconut	Phormium tenax
Agave cantala	Coir	Pina
Agave tequilana	Colombia pita	Pineapple fibres
Agave funkiana *	Curana	Pita floja
Agave americana	Esparto *	Pita
Agave fourcroydes	Furcraea gigantea	Piteira
Agave sisalana	Green ramie bast	Ramie
Agave foetida	Haiti hemp	Rhea bast
Alfa *	Henequen	Sansevieria
Aloe fibre	Ife hemp	Silkgrass
Arghan	Istle *	Sisal
Berandine *	Ixtle *	Tampico *
Beraudine peat *	Karates	Typha *
Boehmeria nivea bast	Maguey	White ramie bast
Boehmeria tenacissima bast	Manila hemp	Yucca
Bowstring hemp	Mauritius hemp	
Bromeliaceae family	Mexican hemp *	
Cantala	Musa textilis Nee	
Caroa	New Zealand flax	
Cattail plant fibre*	New Zealand hemp	

These headings cover fibers obtained from leaves, or, in the case of ramie, fibers obtained from the stalks (the plants themselves or the untreated leaves would remain in chapter 14). Processes differ for the various plants, but in all cases the raw material must be broken down into fiber form to be classified here (these fibers may be relatively short like cotton or wool, or they may be filaments several meters long). However, CERTAIN materials (* those asterisked in the above list, and any other vegetable materials not enumerated in the Explanatory Note) go in these headings only if they are treated in a manner indicating their use for textile purposes. Generally, this would mean that they have been carded or combed in preparation for spinning. This means that the stalks or leaves have been (1) broken down into fine fibers; and (2) carded, combed or aligned in parallel fashion (in a form commonly known as tow, rovings or sliver).

CLASSIFYING YARNS, BRAIDS AND FABRICS OF VEGETABLE FIBERS

Heading 5306-5308 vegetable fiber yarns must be made of spun vegetable fibers. To be "spun," the stalks or leaves must have been (1) broken down into fine parallel fibers, commonly known as tow, rovings or sliver; (2) carded, combed or aligned in parallel fashion in some manner, and (3) caused to adhere to each other by means of spinning. Spinning is a twisting process whereby the materials which have been broken down into fibers and aligned in a parallel fashion, are twisted together until they cling to each other well enough to remain in the form of a yarn. This type of twisting is distinguished from the process of taking two or more finished yarns or other materials and twisting them together to form a plied yarn.

So-called "yarns" that are made of TWISTED unspun vegetable MATERIALS, but not of SPUN vegetable FIBERS, are not classified as yarn, but remain in headings 5301-5305 (or in chapter 14, as appropriate). Because they are not "yarns," these twisted vegetable materials cannot be classified as twine, cordage, rope or cable in heading 5607 either, even if they meet the decitex requirements. Note the distinction in the preceding paragraph between SPINNING and TWISTING.

Spun vegetable fibers (yarns) that meet the definition of twine, cordage, rope or cable are classified in heading 5607. Otherwise they fall in headings 5306-5308.

Spun vegetable fibers (yarns) that are braided would be classified in headings 5607 or 5808, depending on the tightness of the braid.

Other (i.e., unspun) vegetable materials that are braided would probably be classified in chapter 46.

Similarly, if a fabric is woven from spun yarns of headings 5306-5308, it would be classified in headings 5309-5311. If a fabric is woven from unspun vegetable material of headings 5301-5305, it cannot be classified in chapter 53.

PAPER YARN

Paper yarns are separately provided for in heading 5308, by means of a separate description in the heading language, after a semicolon, for "paper yarn." According to the Explanatory Notes, paper yarns are obtained by twisting/rolling lengthwise strips of moist paper, but not simply by folding paper one or more times lengthwise. Note that these criteria are entirely different from those for vegetable fibers yarns and products thereof, discussed above. Paper yarn is not considered yarn of vegetable fibers; it just happens to have been placed in the same chapter as vegetable fibers. Do not confuse the criteria for vegetable fiber yarns (must be made of spun vegetable fibers), with those for paper yarns (must be made by twisting/rolling lengthwise strips of moist paper).

8. MAN-MADE FILAMENT, STRIP & STAPLE FIBERS, AND YARNS THEREOF

MAN-MADE FILAMENTS AND FIBERS

Note 1 to Chapter 54 defines man-made fibers as staple fibers and filaments of organic polymers produced either by polymerization of organic monomers or by chemical transformation of natural organic polymers.

Man-made fibers are further subdivided into two broad classes based on the production process used to obtain them. "Synthetic" man-made fibers are produced by polymerization of organic monomers (an organic molecule is a chemical that contains carbon and was derived originally from living matter). In general these monomers are derived from petroleum distillates and the process involves the linking together of the monomers by chemical means. For example the organic monomer ethylene is connected in a continuous chain of repeating ethylene monomers to form polyethylene which is extruded through a spinneret to form a polyethylene fiber.

The second class of man-made fibers are the "artificial" man-made fibers. These fibers are produced by transforming natural organic polymer. In other words, these products existed as polymers in the natural state such as cellulose in wood and are broken down and reassembled in artificial fibers. Since they had a pre-existence as polymers, their manufacturing process is distinctly different.

The Explanatory Notes to chapter 54 provides a list of the most common "synthetic fibers which include acrylic, modacrylic, polypropylene, nylon and other polyamides, polyester, polyethylene, polyurethane, triviny, and vinylal. Among the "artificial" fibers are three subclasses. "Artificial" cellulosic fibers include viscose rayon, cuprammonium rayon, and cellulose acetate including triacetate. The second subclass of "artificial" man-made fibers are derived from protein from plant and animal sources. These include casein, a derivative of milk, and fibers produced from corn soya bean and nut proteins. The last subclass of "artificial" man-made fibers are the alginate fibers which are derived from seaweed and are based on calcium alginate.

Man-made fibers are also differentiated by their physical form. Chapter 54 provides for man-made filaments and Chapter 55 man-made staple fibers. Staple man-made fibers are in general short fibers

usually measuring 25 to 180 millimeters in length which have been cut from continuous filament man-made fibers. The short fibers are then in most cases spun into yarns. Man-made filaments are continuous fibers which have been produced by extruding the polymerized chemical through spinnerets and are often miles in length.

Since only organic polymers may be considered man-made fiber, several types of yarn and fabric which one might think of as man-made fiber are not considered such under the HTS. The most obvious examples of this are glass fiber yarns and fabrics and carbon fiber yarns and fabrics. Note 1(r) of Section XI excludes glass fibers and articles of glass fibers from the textile section. Similarly Note 1(q) of Section XI excludes carbon fibers and articles of carbon fiber from the textile section.

MAN-MADE FIBER AND FILAMENT PRODUCTION

Generally, production of man-made fibers or filaments begins with bringing the raw materials to a liquid state. In the case of synthetic polymers, this is done by subjecting them to high temperatures. In the case of cellulosic materials, the method generally involves creating a solution of the cellulosic raw materials such as wood pulp and a solvent. The materials in this liquid state are then subject to an extrusion process.

The process of extrusion is sometimes called "spinning," a term borrowed from the sericulture industry because it finds its analogue in the process employed by the silkworm in spinning its cocoon. The silkworm forms in its internal glands a liquid solution which it discharges through two external orifices called "spinnerets" located below its mouth. When emitted, the two threads combine into a single thread and harden immediately upon exposure to air. In much the same way, the spinning solution is conveyed to the so-called spinning frame which consists of rows of jetholders carrying spinning nozzles at their extremities. These nozzles consist of metal caps made of a hard, noncorrosive, light-weight, precious metal or alloy. They are perforated with circular, concentrically-arranged openings of almost microscopic size, ranging from three to five one-thousandths of an inch in diameter. Corresponding as they do to orifices of the silkworm, they are also called "spinnerets."

The apertures of the spinnerets vary in shape according to whether filaments or ribbon-like bands are to be produced. If the former, they vary in size according to the denier of the yarn or fibers desired. By varying the number and size of the spinneret openings, there are produced fine yarns and spinning yarns on the one hand, and coarse monofilaments on the other.

For some materials, the liquid or the solution is forced through the tiny holes of spinnerets into an acid bath, which causes the material to solidify ("regenerate") into continuous filament. Other materials will solidify upon exposure to water or to air, or to lower temperatures.

After extrusion, washing and finishing, filaments are generally wound onto spools and may later be put up on warp beams to be used in weaving.

MAN-MADE STAPLE FIBER PRODUCTION

Man-made staple fibers are generally made by cutting filaments into shorter lengths.

The filament is first produced in the form of tow, which is a large group of untwisted strands (tariff definition: "Headings Nos. 55.01 and 55.02 apply only to man-made filament tow, consisting of parallel filaments of a uniform length equal to the length of the tow, meeting the following specifications: (a) Length of tow exceeding 2 m; (b) Twist less than 5 turns per meter; (c) Measuring per filament less than 67 decitex; (d) Synthetic filament tow only: the tow must be drawn, that is to say, be incapable of being stretched by more than 100% of its length; (e) Total measurement of tow more than 20,000 decitex."). If the tow meets all of these criteria except length, it would be classified in heading 5503 or 5504.

The tow is then either cut or broken into shorter lengths, the length depending on what is required for the particular lot of staple fiber being produced. The staple fiber that results, then needs to be further processed in order to become yarn. It is notable, however, that there is a "tow-to-top" process for man-made fibers, whereby the normal carding and combing steps are skipped and a sliver-like product ("tops") is produced directly. Whatever the method by which these "tops" are produced, the material will then be subject to processes similar to those that either cotton or wool fibers undergo in order to become yarns.

MAN-MADE FIBER YARNS

Filament or staple fiber yarns are produced from man-made filaments or man-made staple fibers, in much the same way that silk yarns are twisted from grouped silk filaments, or cotton or wool yarns are produced from carded or combed fibers. The tariff subheading outlines on the following two pages are intended to serve as a guide to classifying man-made filament and fiber yarns "at a glance" at the six-digit (subheading) level. Refer to discussions earlier in this booklet, for definitions of the key terms. All of the key terms found in the man-made filament and man-made fibre chapters have been defined earlier in this booklet.

TABLE 8.1 MAN-MADE FILAMENT YARNS AND STRIPS AT A GLANCE

5401	SEWING THREAD OF MAN-MADE FILAMENTS, WHETHER OR NOT PUT UP FOR RETAIL SALE.
	5401.10 Of synthetic filaments
	5401.20 Of artificial filaments
5402	SYNTHETIC FILAMENT YARN (OTHER THAN SEWING THREAD), NOT PUT UP FOR RETAIL SALE, INCL. SYNTHETIC MONOFILAMENT OF LESS THAN 67 DECITEX.
	5402.10 High tenacity yarn of nylon or other polyamides
	5402.20 High tenacity yarn of polyester
	Textured yarn:
	5402.31 Of nylon or other polyamides, measuring per single yarn not more than 50 tex
	5402.32 Of nylon or other polyamides, measuring per single yarn more than 50 tex
	5402.33 Of polyesters
	5402.39 Other
	Other yarn, single, untwisted or with a twist not exceeding 50 turns per metre:
	5402.41 Of nylon or other polyamides
	5402.42 Of polyesters, partially oriented
	5402.43 Of polyesters, other
	5402.49 Other
	Other yarn, single, with a twist exceeding 50 turns per metre:
	5402.51 Of nylon or other polyamides
	5402.52 Of polyesters
	5402.59 Other
	Other yarn, multiple (folded) or cabled:
	5402.61 Of nylon or other polyamides
	5402.62 Of polyesters
	5402.69 Other
5403	ARTIFICIAL FILAMENT YARN (OTHER THAN SEWING THREAD), NOT PUT UP FOR RETAIL SALE, INCL. ARTIFICIAL MONOFILAMENT OF LESS THAN 67 DECITEX.
	5403.10 High tenacity yarn of viscose rayon
	5403.20 Textured yarn
	Other yarn, single:
	5403.31 Of viscose rayon, untwisted or with a twist not exceeding 120 turns per metre
	5403.32 Of viscose rayon, with a twist exceeding 120 turns per metre
	5403.33 Of cellulose acetate
	5403.39 Other
	Other yarn, multiple (folded) or cabled:
	5403.41 Of viscose rayon
	5403.42 Of cellulose acetate
	5403.49 Other
5404	SYNTHETIC MONOFILAMENT OF 67 DECITEX OR MORE AND OF WHICH NO CROSS-SECTIONAL DIMENSION EXCEEDS 1 mm; STRIP AND THE LIKE (FOR EXAMPLE, ARTIFICIAL STRAW) OF SYNTHETIC TEXTILE MATERIALS OF AN APPARENT WIDTH NOT EXCEEDING 5 mm.
	5404.10 Monofilament
	5404.90 Other

- 5405 **ARTIFICIAL MONOFILAMENT OF 67 DECITEX OR MORE AND OF WHICH NO CROSS-SECTIONAL DIMENSION EXCEEDS 1 mm; STRIP AND THE LIKE (FOR EXAMPLE, ARTIFICIAL STRAW) OF ARTIFICIAL TEXTILE MATERIALS OF AN APPARENT WIDTH NOT EXCEEDING 5 mm.**
- 5406 **MAN-MADE FILAMENT YARN (OTHER THAN SEWING THREAD), PUT UP FOR RETAIL SALE.**
5406.10 Synthetic filament yarn
5406.20 Artificial filament yarn

TABLE 8.2 MAN-MADE STAPLE FIBER ("SPUN") YARNS AT A GLANCE

- 5508 **SEWING THREAD OF MAN-MADE STAPLE FIBRES, WHETHER OR NOT PUT UP FOR RETAIL SALE.**
5508.10 Of synthetic staple fibres
5508.20 Of artificial staple fibres
- 5509 **YARN (OTHER THAN SEWING THREAD) OF SYNTHETIC STAPLE FIBRES, NOT PUT UP FOR RETAIL SALE.**
Containing 85% or more by weight of staple fibres of nylon or other polyamides:
5509.11 Single yarn
5509.12 Multiple (folded) or cabled yarn
Containing 85% or more by weight of polyester staple fibres:
5509.21 Single yarn
5509.22 Multiple (folded) or cabled yarn
Containing 85% or more by weight of acrylic or modacrylic staple fibres:
5509.31 Single yarn
5509.32 Multiple (folded) or cabled yarn
Other yarn, containing 85% or more by weight of synthetic staple fibres:
5509.41 Single yarn
5509.42 Multiple (folded) or cabled yarn
Other yarn, of polyester staple fibres:
5509.51 Mixed mainly or solely with artificial staple fibres
5509.52 Mixed mainly or solely with wool or fine animal hair
5509.53 Mixed mainly or solely with cotton
5509.59 Other
Other yarn, of acrylic or modacrylic staple fibres:
5509.61 Mixed mainly or solely with wool or fine animal hair
5509.62 Mixed mainly or solely with cotton
5509.69 Other
Other yarn:
5509.91 Mixed mainly or solely with wool or fine animal hair
5509.92 Mixed mainly or solely with cotton
5509.99 Other
- 5510 **YARN (OTHER THAN SEWING THREAD) OF ARTIFICIAL STAPLE FIBRES, NOT PUT UP FOR RETAIL SALE.**
Containing 85% or more by weight of artificial staple fibres:
5510.11 Single yarn
5510.12 Multiple (folded) or cabled yarn
5510.20 Other yarn, mixed mainly or solely with wool or fine animal hair
5510.30 Other yarn, mixed mainly or solely with cotton

- 5510.90 Other yarn
- 5511 **YARN (OTHER THAN SEWING THREAD) OF MAN-MADE STAPLE FIBRES, PUT UP FOR RETAIL SALE.**
- 5511.10 Of synthetic staple fibres, containing 85% or more by weight of such fibres
- 5511.20 Of synthetic staple fibres, containing less than 85% by weight of such fibres
- 5511.30 Of artificial staple fibres

9. INVOICING REQUIREMENTS

YARNS

19 CFR 141.89 specifies invoice requirements for yarns as follows:

- (1) All yarn invoices should show:
 - (a) Fiber content by weight;
 - (b) whether single or plied;
 - (c) whether or not put up for retail sale (See Section XI, Note 4, HTSUS);
 - (d) whether or not intended for use as sewing thread;
- (2) If chief weight of silk -- show whether spun or filament;
- (3) If chief weight of cotton -- show:
 - (a) Whether combed or uncombed
 - (b) Metric number (mn)
 - (c) Whether bleached and/or mercerized;
- (4) If chief weight of man-made fiber -- show:
 - (a) Whether filament, or spun, or a combination of filament and spun
 - (b) If a combination of filament and spun -- give percentage of filament and spun by weight.
- (5) If chief weight of filament man-made fiber -- show:
 - (a) Whether high tenacity (See Section XI, note 6 HTSUS).
 - (b) Whether monofilament, multifilament or strip
 - (c) Whether texturized
 - (d) Yarn number in decitex
 - (e) Number of turns per meter
 - (f) For monofilaments -- show cross sectional dimension in millimeters
 - (g) For strips -- show the width of the strip in millimeters (measure in folded or twisted condition if so imported).

Although 19 CFR provides no specific invoicing requirements for fiber or for twine, cordage, rope or cable, or for textile fibers, 19 CFR 141.86(3) requires:

A detailed description of the merchandise, including the name by which each item is known, the grade or quality, and the marks, numbers, and symbols under which sold by the seller or manufacturer to the trade in the country of exportation, together with the marks and numbers of the packages in which the merchandise is packed...

19 CFR 141.87 further requires that:

Whenever the classification or appraisal of merchandise depends on the component materials, the invoice shall set forth a breakdown giving the value, weight, or other necessary measurement of each component material in sufficient detail to determine the correct duties. Based on these general requirements, the following (non-regulatory) invoicing guidelines have been developed:

TWINE, CORDAGE, ROPE OR CABLE

- (1) State fiber content (sisal, polypropylene, nylon, etc.).
- (2) State whether braided or twisted. If twisted, provide weight per unit length in decitex and direction of twist ("S" or "Z").
- (3) If the item is twisted or braided around a core, describe the core material (e.g., rubber strands, braided cord, etc.)
- (4) Provide diameter in millimeters or centimeters.
- (5) Describe in what condition the item will be imported (i.e., length, in rolls, coils or bales).
- (6) If the item is made of strip, state the width of that strip in both its folded and unfolded condition and state whether or not that strip is fibrillated.
- (7) If the item is single, Z-twisted and of sisal or other textile fibers of the genus agave, provide the minimum twine breaking force.
- (8) If the item is single, Z-twisted, of polyethylene or polypropylene and stabilized against degradation by sunlight, provide the minimum twine breaking force and the average minimum knot breaking force.
- (9) Indicate whether there are loops, hooks or other fittings on one or both ends of the item.
- (10) If the item is dedicated for some special use (such as mountain climbing), state that use and indicate how the item is so dedicated (e.g., length etc.).

FIBERS

Similarly, the following guidelines have been developed for fibers:

- (1) All invoices for fibers should state the fiber content by percentage by weight.
- (2) All invoices for wool and animal hair should state:
 - (a) the animal source from which the fiber is obtained
 - (b) the condition (greasy, shorn, unimproved, degreased, scoured, fleece washed, carbonized, carded, combed etc.) of the fiber
 - (c) the grade (finer than 40's but not finer than 44's, etc.) of each lot of wool, specifying the standards used (U.S. official standards, etc.)
 - (d) the net weight of each lot of wool or hair in the condition in which it is shipped, and the shipper's estimate of the clean yield of each lot by weight or percentage.

- (3) All invoices for raw cotton should state:
 - (a) whether harsh or rough cotton
 - (b) the staple length
 - (c) the variety of cotton, such as Karnak, Gisha, Pima, Tanguis, etc.
- (4) All invoices for raw vegetable fibers should state:
 - (a) the type of fiber (flax, jute, hemp etc.)
 - (b) whether the fiber is raw, retted, broken, scutched or otherwise processed.
- (5) All invoices for man-made staple fibers should state:
 - (a) fiber content
 - (b) whether the fiber is carded, combed or otherwise processed for spinning.

APPENDIX A: USEFUL CONVERSION FACTORS

WEIGHT

- 1 kilogram = 2.2046 pounds
- 1 ounce = 28.35 grams

FORCE

- 1 pound-force = 4.448 Newtons
- 1 kilogram-force = 9.807 Newtons
- 1 kilogram-force = 2.2046 pounds-force

DISTANCE

- 1 inch = 2.54 centimeters
- 1 yard = 0.9144 meters
- 1 kilometer = .6214 miles

LINEAR DENSITY

- Decitex = number of grams per 10,000 meters
- NM Metric cotton yarn number = $1.6933 \times$ NE English cotton yarn number
- $NM = 10,000 \div \text{Decitex}$
- $NM = 9,000 \div \text{Denier}$
- $\text{Decitex} = 10 \times \text{Tex}$
- $\text{Decitex} = 10,000 \div NM$
- $\text{Decitex} = 5,900 \div NE$
- $\text{Decitex} = 1.111111 \times \text{Denier}$
- $\text{Decitex} = 14,880,000 \div \text{number of feet per pound}$

TENACITY

- 1 gram/denier = 8.827 centinewtons/tex
- 1 millinewton/decitex = 1 centinewton/tex

APPENDIX B: BURN TEST

BACKGROUND

Textile fibers are complex chemical substances. As such, they exhibit varying behavior when they burn; for example, color of smoke and type of residue. The burning test is a simple method to identify fibers because all that is needed is a flame and a knowledge of the burning properties. Relatively little skill or training is required, and it is a quick test since it last only as long as the material burns.

The burning test is not only useful to those who have no other means of identification available, but is also useful as a confirmatory test to those doing fiber analysis by other means. For example, under the microscope, regular nylon and polyester have the same appearance. While it is usually not possible to tell them apart solely by using the microscope, it is usually possible to distinguish between these two fibers by burning them.

LIMITATIONS

The burning test does have certain limitations. The burning behavior of the fiber may be affected by the finish applied to the fiber. For example, a flame retardant finish on a cotton fabric greatly reduces the degree of flammability, while napping or brushing of the same fabric increases the rate of burning.

Also, the presence of blends often complicates the identification of fibers by burning. Two or three different kinds of fiber burning together in one yarn may be difficult to distinguish. However, with practice, many common blends, such as polyester and wool, can be identified by this method.

Some fibers burn almost identically because they have the same chemical composition. Cotton, flax, ramie, and viscose rayon are examples. Other methods must be used to differentiate these four.

METHOD

In the burning test, the following items are considered: (a) melting and/or burning characteristics; (b) appearance, shape, feel and color of the residue or remains after burning. (See Table B). The method is as follows:

1. Lay out a sheet of aluminum foil 6 to 9 inches square to act as a fireproof surface on which to work

2. Yarns (warp yarns and filling yarns) will run perpendicular to each other in a fabric. Separate several yarns from both the horizontal and vertical directions. The yarns should be 4 to 5 inches in length.
3. Twist at least 4 to 6 yarns together to form a bundle about 1/8 inch in diameter.
4. Hold the bundle with tweezers (or between coins) such that about 3 inches are available to burn. Keep the fiber bundle as horizontal as possible.
5. Bring the fiber close to the flame but not into the flame Note if the fiber melts. Note if the fiber shrinks away from the flame Note if the burned end of the fiber forms an ash, a bead or other characteristic noted in Table B.
6. Ignite the fiber. Note if the fiber self-extinguishes (flame goes out when lighter removed). Note the color of the smoke; is it very dark or black Rate of burning is generally not useful since it depends on the size of the bundle and other such factors, but man-made fibers generally burn faster than natural fibers.

SAFETY NOTES

1. To avoid burns do not hold the fibers in the hand. Do not bring flame too close to the head or hair, especially facial hair.
2. It is better to use a butane lighter than a match.

TABLE B: BURNING CHARACTERISTICS OF TEXTILE FIBERS

Fiber	Burn or melt	Shrinks from flame?	Residue	Other Properties
acetate	burns & melts	yes	dark, hard, solid bead	acid (hot vinegar) odor
acrylic	burns & melts	yes	hard, irregularly shaped bead	flame gives off black smoke; acrid odor
aramid	burns & melts	yes	hard, black bead	self-extinguishing
cotton	burns	no	fine, feathery gray ash	odor similar to burning paper
flax, hemp, jute, ramie	burns	no	fine, feathery gray ash	odor similar to burning paper
glass	melts at high temperature not attainable with lighter	very slowly		flame resistant fiber; heat from lighter will not cause fiber to melt
modacrylic	burns & melts	yes	hard, black, irregular bead	self-extinguishing; acrid chemical odor
novoloid	burns at high temperature not attainable with lighter	yes	retains shape but turns black	heat from lighter will not cause fiber to burn
nylon	burns & melts	yes	hard, cream colored bead; if fibers are overheated, bead will become dark	flaming usually caused by finish present; drops of melted fiber may fall from heated portion of sample; celery odor
olefin	burns & melts	yes	hard, tan bead	flame gives off black smoke; chemical odor
polyester	burns & melts	yes	hard, cream colored bead; if fibers are overheated, bead will become dark	drops of melted fiber may fall from heated portion of sample; flame gives off black smoke; chemical odor
rayon	burns	no	fine, feathery gray ash	
rubber	burns rapidly and melts	yes	tacky, soft black residue	
saran	burns & melts	yes	hard, black irregular bead	self-extinguishing; chemical odor
silk	burns	yes	black, hollow irregular bead which crushes easily to a gritty black powder	
spandex	burns & melts	no	soft, black ash	
triacetate	burns & melts	yes	dark, hard, solid bead	chemical odor
vinal	burns & melts	yes	hard, tan bead	chemical odor
vinylon	burns & melts	yes	hard, black irregular bead	acid odor

wool, mohair, cashmere, alpaca	burns	yes	black, hollow irregular bead which crushes easily to a gritty black powder	
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ADDITIONAL INFORMATION

Customs Electronic Bulletin Board

The Customs Electronic Bulletin Board (CEBB) is an automated system which provides the entire trade community with current, relevant information regarding Customs operations and items of special interest. It was established as another effort to promote the Customs Service as "trade friendly" within the importing and exporting community. The CEBB posts timely information including proposed regulations, news releases, Customs publications and notices, etc which may be "downloaded" to your own PC. The Customs Service does not charge the public to use the CEBB. You only pay telephone charges. To use the CEBB, you must have a personal computer with a modem. The CEBB supports modem speeds from 2400 to 28,800 baud. Set up your terminal as ANSI, set databits to 8, set parity to N and stopbits to 1. Dial (703) 921-6155 and log on with your name and choose a password. After a few questions, you are set to get up-to-date information from Customs. If you have any questions about the CEBB, call (703) 921-6236.

The Internet

The Customs home page on the Internet's World Wide Web --which began public operation on August 1, 1996-- will also provide the entire trade community with current, relevant information regarding Customs operations and items of special interest. It was established as another effort to promote the Customs Service as "trade friendly" within the importing and exporting community. The home page will post timely information including proposed regulations, news releases, Customs publications and notices, etc. which may be printed or "downloaded" to your own PC. Not all features may be available in the beginning. The Customs Service does not charge the public for this service, although you will need Internet access to use it. The Internet address for Customs home page is <http://www.customs.ustreas.gov>.

Customs Regulations

The current edition of *Customs Regulations of the United States*, in loose-leaf format, is available by subscription from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The bound 1996 Edition of Title 19, *Code of Federal Regulations*, which incorporates all changes to the *Customs Regulations* from April, 1995 through March, 1996 is also available for sale from the same address. All proposed and final regulations are published in the *Federal Register* which is published daily by the Office of the Federal Register, National Archives and Records Administration, and distributed by the Superintendent of Documents. Information on on-line access to the *Federal Register* may be obtained by calling (202) 512-1530 between 7 a.m. and 5 p.m. Eastern time. These notices are also published in the weekly *Customs Bulletin* described below.

Customs Bulletin

The *Customs Bulletin and Decisions* (“*Customs Bulletin*”) is a weekly publication which contains decisions, rulings, regulatory proposals, notices and other information of interest to the trade community. It also contains decisions issued by the U. S. Court of International Trade and Customs related decisions of the U. S. Court of Appeals for the Federal Circuit. Bound volumes are issued annually. The Customs Bulletin is available for sale from the Superintendent of Documents.

Video Tapes

The U. S. Customs Service has prepared a two hour video tape in VHS format to assist Customs officers and members of the public in understanding the new ***Rules of Origin for Textiles and Apparel Products*** which became effective on July 1, 1996. Copies of this tape are available from many trade organizations, customs brokers, consultants and law firms. The tape may also be purchased for \$20.00 (U.S. funds) directly from the Customs Service. If you require further information, or would like to purchase one or more tapes, please forward your written request to: U.S. Customs Service, Office of Regulations and Rulings, 1301 Constitution Avenue, NW, Franklin Court, Washington, DC 20229, Attn: Operational Oversight Division. Orders must be accompanied by a check or money order drawn on a U.S. financial institution and made payable to U.S. Customs Service.

Informed Compliance Publications

The U. S. Customs Service has also prepared other Informed Compliance publications in this series which are available from the Customs Electronic Bulletin Board (see above). Of particular interest to textile and apparel importers are: **NAFTA: for Textiles and Textile Articles** and **Raw Cotton: Tariff Classification and Import Quotas**, both issued in May, 1996.

Additional information may be obtained from Customs ports of entry. Please consult your telephone directory for a Customs office near you. The listing will be found under U.S. Government, Treasury Department.

The information provided in this publication is for general information purposes only. Recognizing that many complicated factors may be involved in customs classification issues, an importer may wish to obtain a ruling under Customs Regulations, 19 C.F.R. Part 177, or obtain advice from an expert (such as a licensed Customs Broker, attorney

or consultant) who specializes in Customs classification. Reliance solely on the general information in this pamphlet may not be considered reasonable care.